2SC4452

T-35-09

2059 NPN Epitaxial Planar Silicon Transistor

High-Speed Switching Applications

Features

- Fast switching speed
- Low collector saturation voltage
- High gain-bandwidth product
- Small collector capacity
- Very small-sized package permitting the 2SC4452-applied sets to be made small and slim

Absolute Maximum Ratings at Ta = 25°C

			unit
Collector to Base Voltage	V_{CBO}	40	V
Collector to Emitter Voltage	V_{CES}	40	V
Collector to Emitter Voltage	V_{CEO}	15	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current	I_C	200	mA
Peak Collector Current	i_{cp}	500	mA
Base Current	I_B	40	mA
Collector Dissipation	P_C	150	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=20V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=3V, I_C=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=1V, I_C=10mA	*50	90	*200	
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=10mA	450	750		MHz
Collector Capacitance	c_{ob}	V_{CB}=5V, f=1MHz		1.4	4.0	pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=10mA, I_B=1mA		0.13	0.25	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=10mA, I_B=1mA		0.80	0.85	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	40			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	15			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		8.0		ns
Storage Time	t_{stg}			6.0		ns
Turn-OFF Time	t_{off}			12		ns

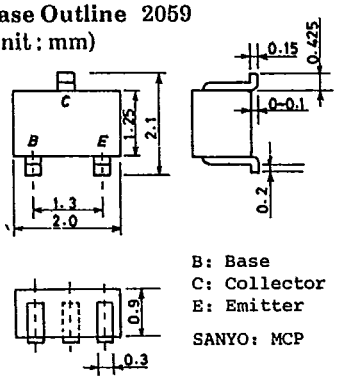
*: The 2SC4452 is classified by 10mA h_{FE} as follows:

50 2 100	70 3 140	100 4 200

Marking: ST

h_{FE} rank: 2,3,4

Case Outline 2059
(unit: mm)



B: Base
C: Collector
E: Emitter
SANYO: MCP

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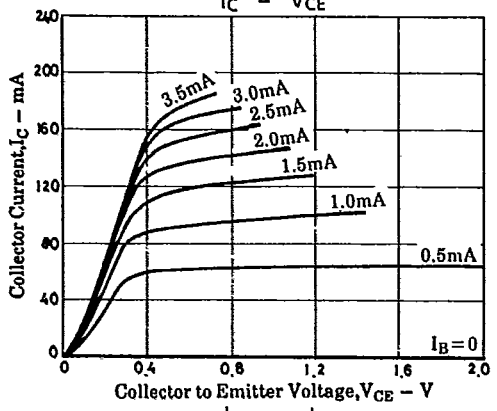
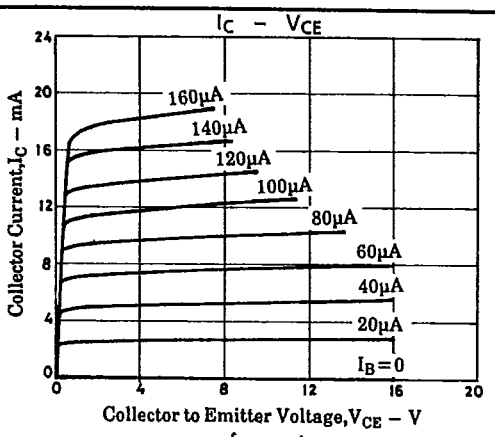
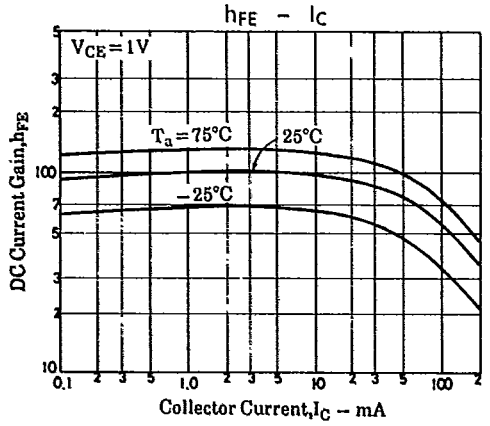
I_C – V_{CE}



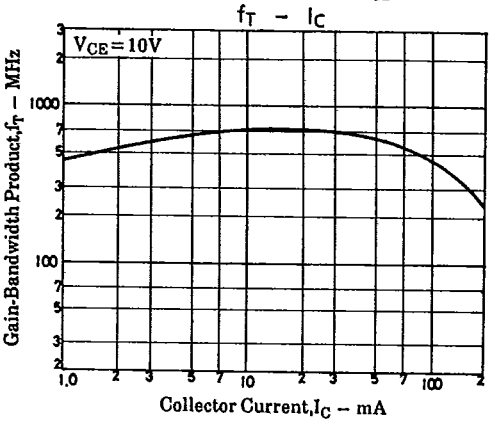
I_C – V_{CE}



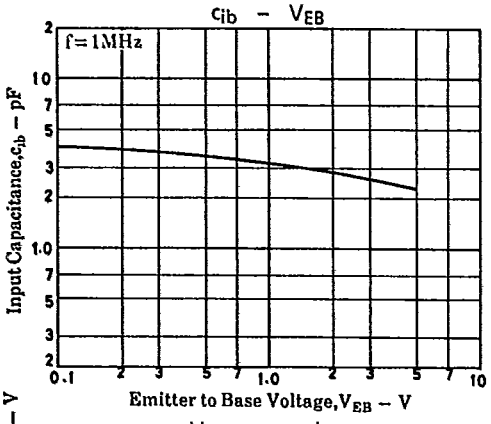
h_{FE} – I_C



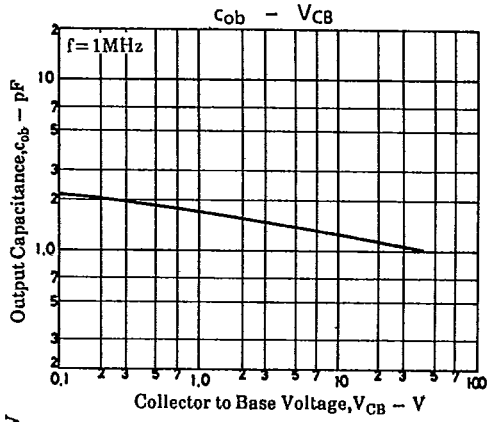
f_T – I_C



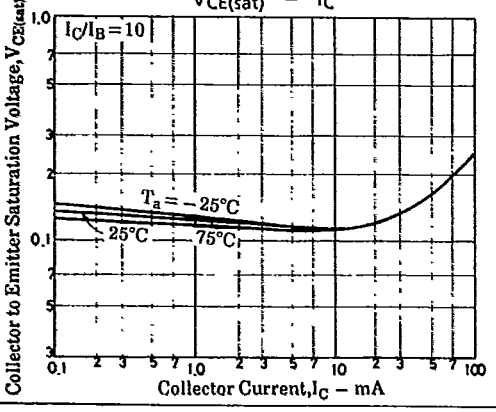
C_{ib} – V_{EB}



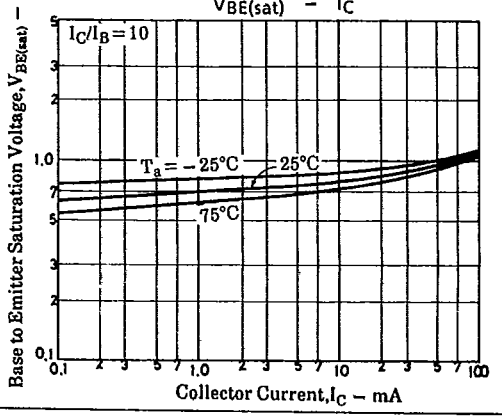
C_{ob} – V_{CB}



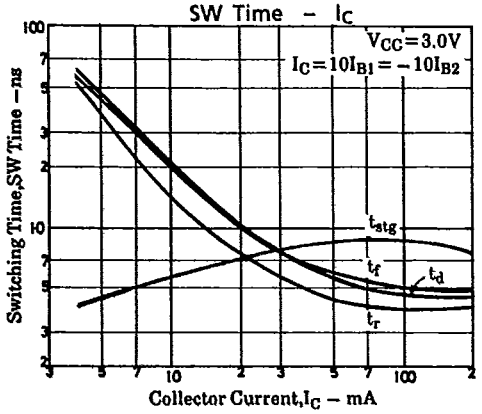
$V_{CE(sat)}$ – I_C



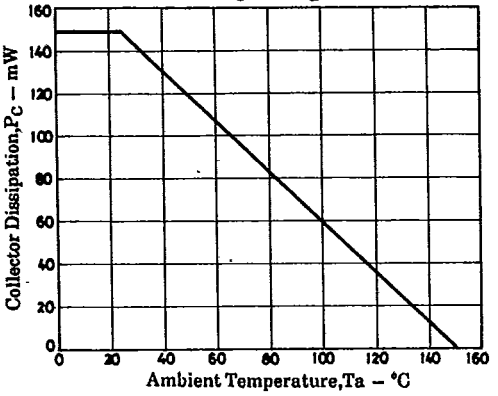
$V_{BE(sat)}$ – I_C



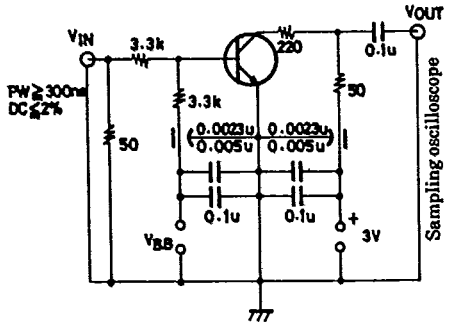
SW Time – I_C

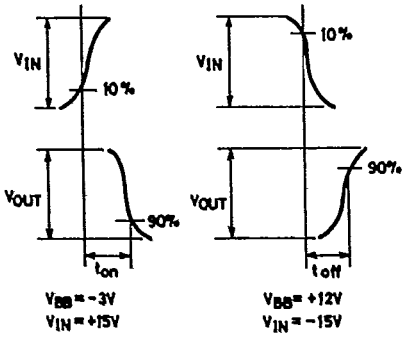


P_C – T_a

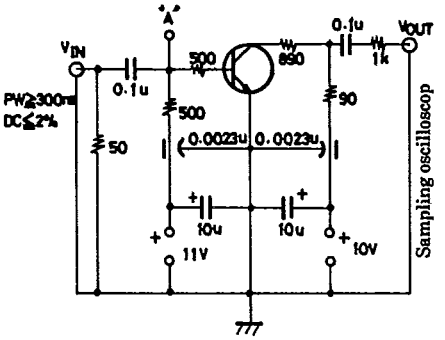


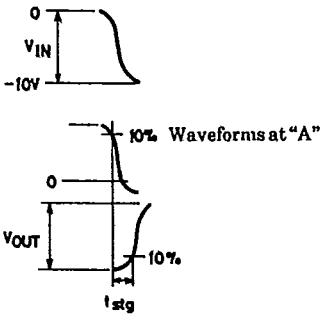
t_{on},t_{off} Test Circuit





t_{stg} Test Circuit





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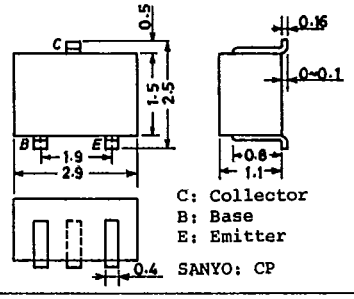
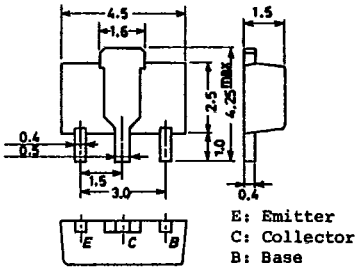
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- All of Sanyo surface mount transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

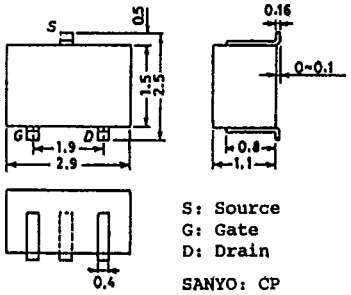
Case Outline—[2018A] unit: mm



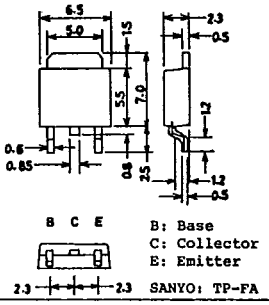
Case Outline—[2038] unit: mm



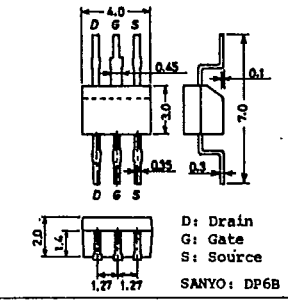
Case Outline—[2024A] unit: mm



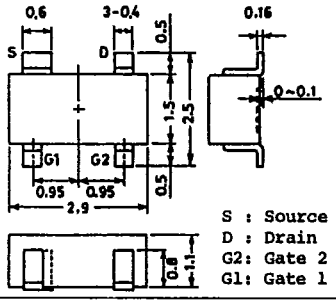
Case Outline—[2044] unit: mm



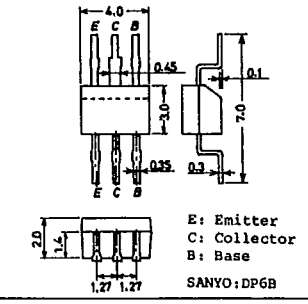
Case Outline—[2028A] unit: mm



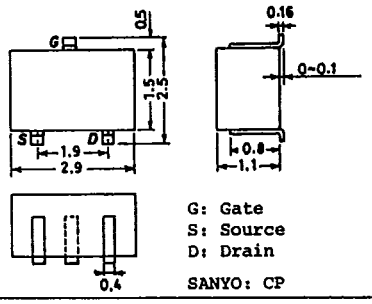
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm



Case Outline—[2050] unit: mm



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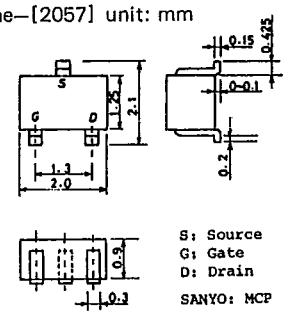
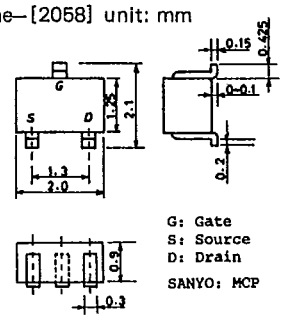
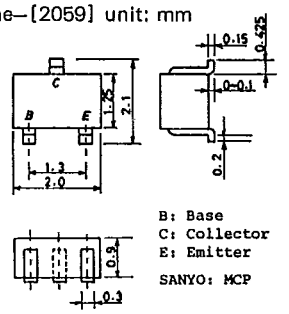
Case Outline—[2057] unit: mm



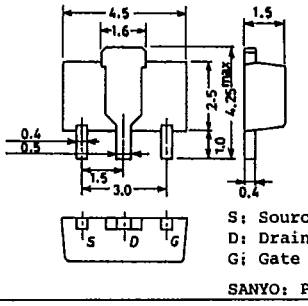
Case Outline—[2058] unit: mm



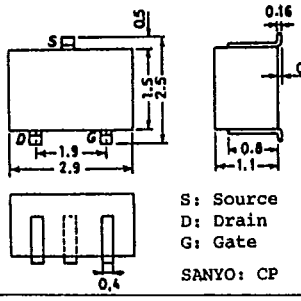
Case Outline—[2059] unit: mm



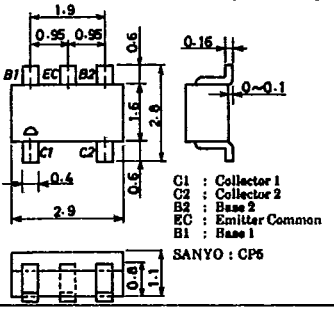
Case Outline—[2062] unit: mm



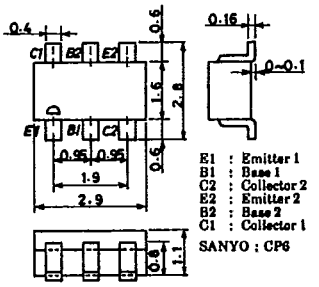
Case Outline—[2065] unit: mm



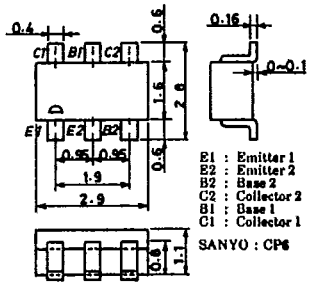
Case Outline—[2066] unit: mm



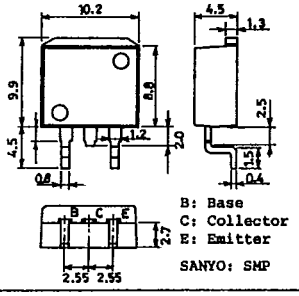
Case Outline—[2067] unit: mm



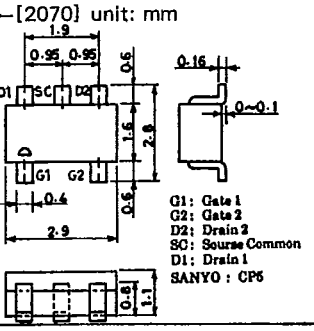
Case Outline—[2068] unit: mm



Case Outline—[2069] unit: mm



Case Outline—[2070] unit: mm



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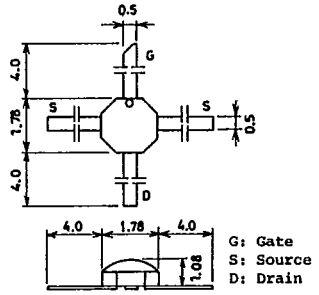
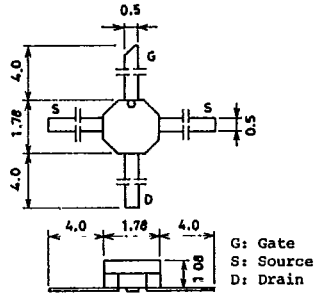
Case Outline—[2071] unit: mm



Case Outline—[2072] unit: mm



Case Outline—[2073] unit: mm